

REMARKS

Claims 1 – 9, 11, 13 – 17, 19, 21 - 24 are pending. Claims 8, 11, 13, 14, 16, 19, and 21 have been amended. Claims 10, 12, 18, and 20 have been cancelled. No new matter has been introduced. Reexamination and reconsideration of the application are respectfully requested.

The Examiner rejected claims 1-3, 6 - 12, 14 - 17, and 19 - 20 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,630,074 to Beltran (the Beltran reference). The Examiner rejected claims 4 - 5 under 35 U.S.C. § 103(a) as being unpatentable over the Beltran reference in view of U.S. Patent No. 5,862,403 to Kanai et al. (the Kanai reference). The Examiner rejected claims 13, 18, and 21 under 35 U.S.C. § 103(a) as being unpatentable over the Beltran reference in view of U.S. Patent No. 5,640,604 to Hirano et al. (the Hirano reference). These rejections are respectfully traversed.

The present invention is directed to a system and method for inter-thread communication. A first group of threads has at least one thread. The at least one thread makes a request which is buffered in a first buffer. The request is retrieved from the first buffer. At least one thread in a second group of threads performs the operation according to the request retrieved from the first buffer. A second buffer buffers a response corresponding to the request where the response is generated by the at least one thread of the second group. The response is retrieved by the at least one thread from the first group.

Claim 1 recites:

1. A system for inter-thread communications, comprising:

at least one thread from a first group of threads;

a first buffer for buffering a request from the at least one thread
from the first group;

at least one thread from a second group of threads for performing
an operation according to the request;

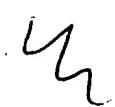
*a second buffer for buffering a response with respect to the
request, the response being generated by the at least one thread from the
second group, the response being retrieved by the at least one thread
from the first group.*

The Beltran reference is directed to a novel control program that includes inter-program communication and dynamic scheduling. Two subprograms, HOLDER and KERNEL, are installed as resident programs. The HOLDER program controls the process of receiving, storing, and delivering the mail, i.e., inter-program communication.

The HOLDER program contains two buffer memories, a public buffer and a private buffer. The public buffer is the mail room that supports inter-program communication. Program A may call the HOLDER program to send a message to application B. After application A terminates, and if application B is executed at a future time, application program B may call the HOLDER program to receive the message sent by application program A. The mail will be delivered if both programs are part of a pre-defined script which assures that both programs are executed in sequence. (*Beltran, col. 4, line 42 - col. 5, line 15.*)

There is no means to ensure that message is delivered from application A to B. The capability, known as dynamic scheduling, is supported by the private buffer. The private buffer contains the execution thread required to accomplish a complex task. An application may send one or more messages to the private buffer, each message identifying a program to be executed to create a master plan. When an application is called to fulfill its role in the master plan, it may communicate via the HOLDER program, to become aware of the master plan of which it is a part or to alter the plan. The alterations may include adding new application programs, deleting application programs, or changing the order of execution. (*Beltran, col. 5, line 16 - 28*).

The Beltran reference does not disclose, teach, or suggest the system of independent claim 1. Unlike the system of independent claim 1, the Beltran reference does not concern a system for inter-thread communications including at least one thread from a first group, a first buffer for buffering a request from the at least one thread from the first group, at least one thread from a second group of threads for performing an operation according to the request retrieved from the first buffer; and a *second buffer for buffering a response with respect to the request, the response being generated by the at least one thread from the second group*, the response being retrieved by the at least one thread from the first group. Alternatively, in the Beltran reference, a first program sends a message to a public buffer and a second program receives the message from the public buffer.



The Beltran reference discloses a HOLDER program where an application program sends a message to the private buffer, or first buffer, and each message identifies a program to be executed to, which, in effect, creates a master plan. This is

not the same a system for inter-thread communications including a second buffer for buffering a response with respect to the request, the response being generated by the least one thread from the second group. It is not the same because the Beltran reference does not disclose a second buffer for buffering a response with respect to the request. The two buffers disclosed in the Beltran reference are a private buffer and a public buffer, which are utilized for two different purposes and do not interact with each other. There is no disclosure in the Beltran reference of a response being generated from the second program, i.e., the thread from the second group of threads. The Beltran reference is not found to discuss the response from the at least one thread. Accordingly, applicant respectfully submits that independent claim 1 distinguishes over the Beltran reference.

Independent claim 1 further distinguishes over the Beltran reference. The Beltran reference does not concern a system for inter-thread communications including at least one thread from a first group, a first buffer for buffering a request from the at least one thread from the first group, at least one thread from a second group of threads for performing an operation according to the request retrieved from the first buffer; and a second buffer for buffering a response with respect to the request, the response being generated by the at least one thread from the second group, *the response being retrieved by the at least one thread from the first group.*

The Beltran reference is not found to disclose that a response is generated by the second program, so it is impossible for the Beltran reference to disclose that the at least one thread from the first group retrieved the response. Accordingly, applicant respectfully submits that claim 1 further distinguishes over the Beltran reference.

The Kanai reference does not make up for the deficiencies of the Beltran reference. The Examiner utilizes the Kanai reference to show a buffer comprised of a plurality of buffer units. (*October 31 Office Action, pages 4*). Applicants acknowledge that the Kanai reference does teach a buffer comprised of a plurality of buffer units. However, the Kanai reference does not disclose, teach, or suggest a system for inter-thread communications including at least one thread from a first group, a first buffer for buffering a request from the at least one thread from the first group, at least one thread from a second group of threads for performing an operation according to the request retrieved from the first buffer; and *a second buffer for buffering a response with respect to the request, the response being generated by the at least one thread from the second group, the response being retrieved by the at least one thread from the first group*. Accordingly, applicant respectfully submits that claim 1 distinguishes over the Kanai reference, alone or in combination with the Beltran reference.

Independent claims 6 and 14 recite similar limitations to independent claim 1. Accordingly, independent claims 6 and 14 distinguish over the Beltran and Kanai references, alone or in combination, for similar reasons as discussed above in regard to independent claim 1.

Claims 2 - 5, 7 - 9, and 15 - 17 depend, indirectly or directly, on independent claims 1, 6, and 14, respectively. Accordingly, applicant respectfully submits that claims 2 - 5, 7 - 9, and 15 - 17 distinguish over the Beltran and Kanai references for the same reasons discussed above in regard to independent claims 1, 6, and 14.

Claim 11, as amended, distinguishes over the Beltran reference. Independent claim 11 recites:

A method of inter-thread communication, comprising:

- generating, by a thread from a first group of threads, a request to a thread from a second group of threads;
- identifying an available buffer cell in a first buffer;
- packing the request in the available buffer cell of the first buffer;
- and
- receiving a response with respect to the request, generated by the thread from the second group, from a second buffer after the request being packed by the packing.*

The Beltran reference does not disclose, teach, or suggest the method of claim 11, as amended. The Beltran reference does not concern a method of inter-thread communication including generating a request to a thread from a second group of threads, identifying an available buffer cell in a first buffer; packing the request in the available buffer cell; and *receiving a response with respect to the request, generated by the thread from the second group from a second buffer after the request being packed by the packing.*

Instead, the Beltran reference discloses one application program causing the execution of a second application program by sending one or more messages to a private buffer or public buffer, i.e., a first buffer, each message identifying a program to be executed to create a master plan. When the second application program is called to fulfill its role in the master plan or retrieves the message and executes the program, it may communicate to become aware of the master plan and may change or alter the master plan. (*Beltran, Col. 5, lines 9 – 27*). This is not the same as receiving a

response generated by the thread from the second group from a second buffer with respect to the request from the first group of threads. It is not the same because, the Beltran second application program, i.e., thread from second group of threads, is not found to store the response generated by the program in a second buffer. Further, the Beltran reference does not disclose the receiving of a response generated by the second program from the second buffer. Accordingly, applicant respectfully submits that claim 11, as amended, distinguishes over the Beltran reference.

Independent claim 19, as amended, recites similar limitations to independent claim 11, as amended. Accordingly, applicant respectfully submits that independent claim 19, as amended, distinguishes over the Beltran reference for similar reasons as discussed above in regard to independent claim 11, as amended.

Independent claim 13, as amended, distinguishes over the Beltran and Hirano references. Independent claim 13 recites:

A method of inter-communication, comprising:

- receiving, by a thread from a second group of threads, a request, sent by a thread from a first group of threads, from a first buffer;
- processing the request from the thread of the first group of threads;
- generating a response from the thread from the second group of threads with respect to the request after the processing;
- identifying an available buffer cell in a second buffer; and
- packing the response, from the thread from the second group of threads in respect to the request from the thread from the first group of threads, in the available buffer cell in the second buffer.*

The Beltran reference does not disclose, teach, or suggest the method of claim 13, as amended. The Beltran reference does not concern a method of inter-thread communications including receiving a request by a thread from a second group of threads sent by a thread from a first group of threads, processing the request, generating a response from the thread from the second group of threads with respect to the request; identifying an available buffer cell in a second buffer; and *packing the response from the thread from the second group of threads, that was generated with respect to the request from the thread from the first group of threads, in the available buffer cell in the second buffer.*

Instead, the Beltran reference only discloses a second application that is executed because a private buffer including the second application's execution thread is identified by a first application program. The second application then executes and fulfills its role in the master plan. (*Beltran, Col. 5, line 16 – 20*). However, there is no discussion that the second application provides a response or stores a response, i.e., packs a response from the second application in a buffer cell in a second buffer in respect to the request from the thread in the first group of threads. As discussed above, the Beltran reference does not disclose a second buffer. Accordingly, applicant respectfully submits that claim 13, as amended, distinguishes over the Beltran reference.

The Hirano reference does not make up for the deficiencies of the Beltran reference. The Hirano reference is directed to a buffer reallocation system for allocating a buffer to a plurality of programs requiring the use of a buffer. (*Hirano, col. 2, lines 51 – 53*). A request for a buffer is made and the day of the month, the day of

the week, and the time of day is retrieved from the calendar/clock for the request. An interval is calculated between the last request for a buffer and the current request for a buffer and the interval is written in a time interval table. An unused buffer is acquired from a buffer storage area. A count of free areas in the buffer is also confirmed. The unused buffer is surrendered to the program requiring the buffer. If more buffer space is needed, then the system determines if there is unused buffer area in main memory. Additional buffer area may then be acquired from main memory. (*Hirano, Col. 6, lines 52 – 42; Fig. 6*).

The Hirano reference does not teach, disclose, or suggest the method of claim 13, as amended. The Hirano reference does not concern a method of inter-thread communications including receiving a request by a thread from a second group of threads sent by a thread from a first group of threads, processing the request, generating a response from the thread from the second group of threads with respect to the request; identifying an available buffer cell in a second buffer; and *packing the response from the thread from the second group of threads that was generated with respect to the request from the thread from the first group of threads, in the available buffer cell in the second buffer.*

Instead, the Hirano reference is allocating a buffer for utilization by a program. The allocation program may gather additional free space from main memory if the buffer currently being utilized runs out of space. This is not the same as *packing the response from the thread from the second group of threads, that was generated with respect to the request from the thread in the first group of threads, in the available buffer cell in the second buffer.* The Hirano reference does not disclose that the

response from the thread from a second group of threads is packed because the Hirano reference refers to allocating buffer space for one program or a single program and not to a second program, i.e., a thread from a second group of threads. Further, the Hirano reference does not disclose that the response was generated with respect to the request from the first group of threads because the Hirano reference discloses allocating buffer space according to a buffer request from a first program, which is not a response being generated that is packed into an available buffer cell. Accordingly, applicant respectfully submits that claim 13, as amended, distinguishes over the Hirano reference, alone or in combination, with the Beltran reference.

Independent claim 21, as amended, recites similar limitations as independent claim 13, as amended. Accordingly, applicant respectfully submits that independent claim 21, as amended, distinguishes over the Beltran and Hirano references, alone or in combination, for similar reasons as stated above in regard to claim 13, as amended.

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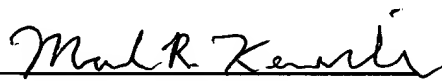
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Applicant believes that the claims are in condition for allowance, and a favorable action is respectfully requested. If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call either of the undersigned attorneys at the Los Angeles telephone number (213) 488-7100 to discuss the steps necessary for placing the application in condition for allowance should the Examiner believe that such a telephone conference would advance prosecution of the application.

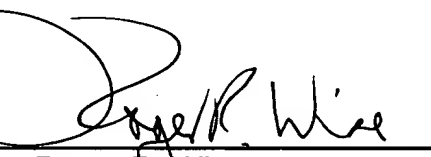
Respectfully submitted,

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